

# Origins of a Redneck Smart Workzone

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# Origins

- Fatal wreck on I-95 in workzone
- R-2552 Clayton Bypass Project cancels specified Smart Workzone
- Installing “Your Speed Is” sign at NC42/I40
- RWIS Weather Station Upgrade automates messages to Highway Advisory Radios

# Origins

- July 6, 2005
- I-95 at mile marker 80
- Northbound
- 18 Wheeler & Car
- Fatality
- Rear end collision due to stopped traffic in workzone



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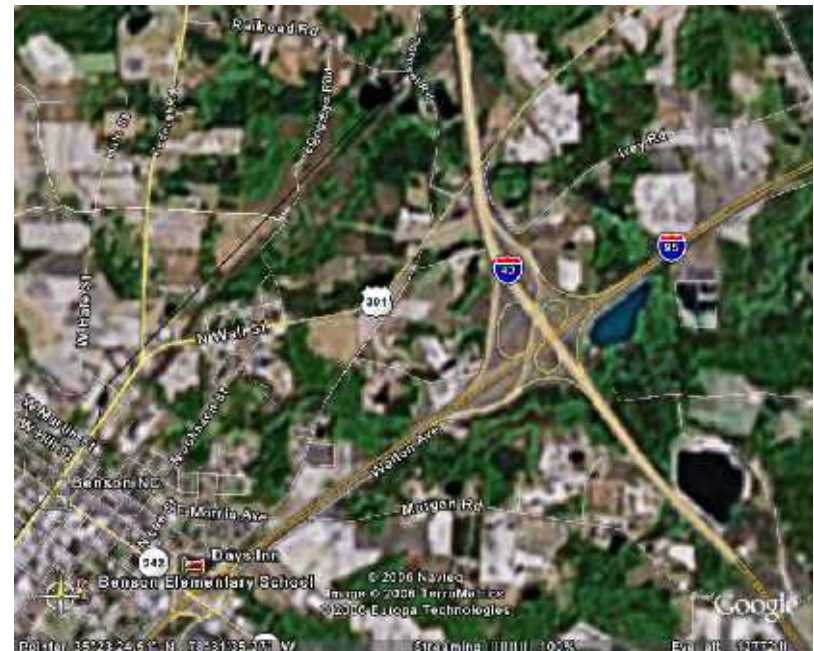
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## Origins

- Partly Cloudy and Hot
- Begin Road Work signs at mm 77.
- Lane Closure at mm 85
- Work at mm 90.
- Rear end collision due to stopped traffic in workzone



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# Origins

- July 6, 2005
- I-95 at mile marker 78
- Northbound
- Single Vehicle
- One Serious Injury
- Driver attempted to stop for mm 80 wreck, hit rail, vaulted into southbound lanes



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# Origins



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# Everybody Loves Numbers

- Crash Statistics

What Happened During This Period?	2001	2002	2003	2004
Number of Reportable Crashes within North Carolina:	217,794	221,904	231,247	
Number of Reportable Crashes that resulted in fatalities:	1,530	1,573	1,552	1,557
Number of Reportable Crashes that were alcohol related:	13,194	12,036	10,890	
Number of Fatal Crashes that were alcohol related:	380	361	354	

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# Everybody Loves Numbers

- 2004 NC Construction & Maintenance
  - 250 Major Workzones
  - 5,896 Crashes, 3,400 Injuries, 50 Fatalities
  - 55% Speeding, 72% on Clear Days, 82% on Dry Roads, 77% during Daylight Hours, 3% involved Alcohol.
- USA has 40,000 injuries/yr, 1,068 fatalities in 2004, 20% Trucks, 55% at 55mph or greater.

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# Radar Speed Sign



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# Radar Speed Sign



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# Radar Speed Sign

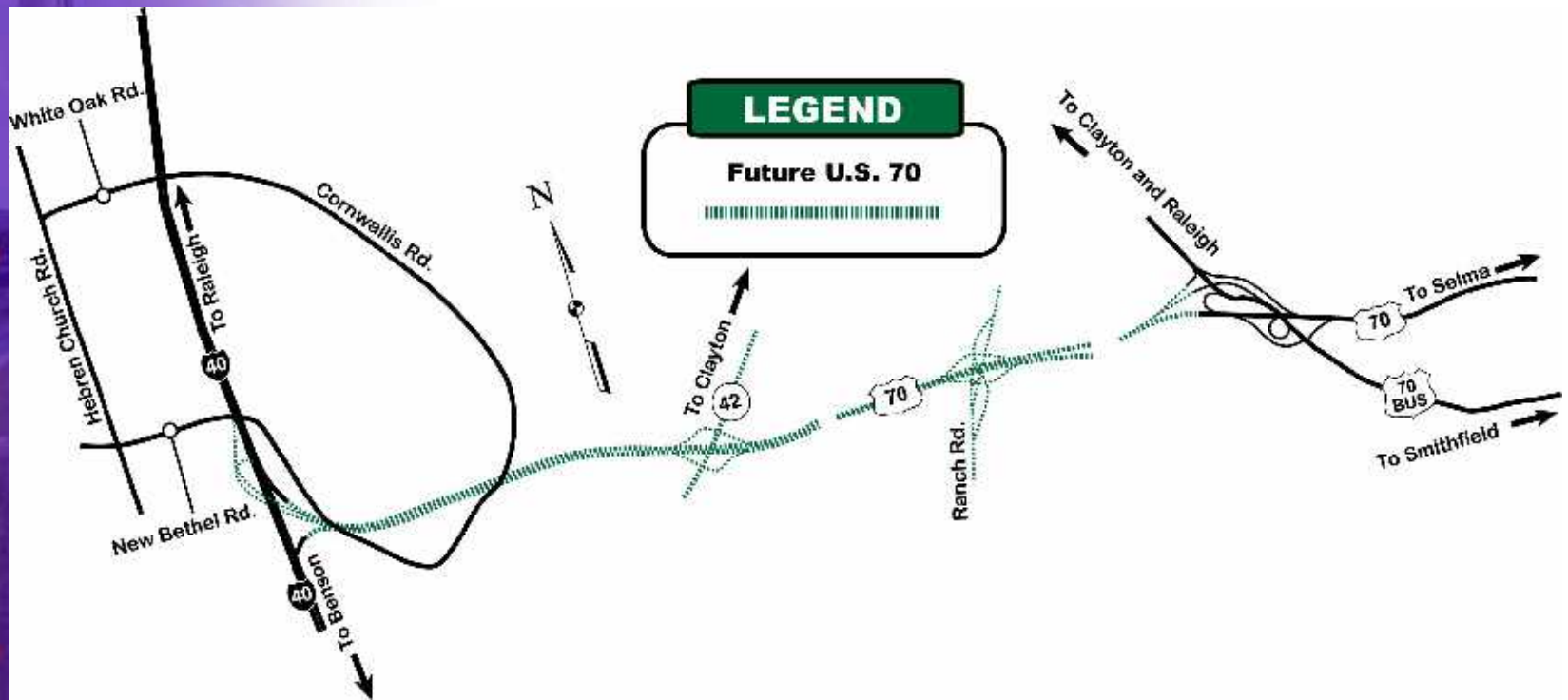


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# Clayton Bypass Project



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## US 70 Clayton Bypass



### Fast Facts:

- ◆ **Est. Completion Date:** June 2009
- ◆ **Project Cost:** \$123 million
- ◆ **Project Team:** S.T. Wooten Corp.
- ◆ **Region(s):** Coastal, Triangle
- ◆ [Construction Progress Report](#)

### News & Updates:

Download the latest  [News & Updates](#).

### Why is this road being built?

The new highway will relieve congestion on existing U.S. 70 and provide motorists traveling to Raleigh or to the coast an alternate route built to interstate standards. Motorists traveling to I-40 through Clayton will have a faster less congested route.

### Project Highlights:

- It will be a new four-lane, divided Highway.
- There will be access points at interchanges including I-40, N.C. 42, Ranch Road and the U.S. 70/U.S. 70 Business Split.
- The new road will include 22 new bridges.
- Once it is constructed, existing U.S. 70 will become U.S. 70 Business.

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Address <https://apps.state.nc.us/TIMS/incident/incidentDetail.asp?ID=244663>

Google Search

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
Traveler Information Management System

HOME CONTACT US SEARCH NC SMARTLINK NCDOT NC-GOV

Admin Login

FAQ Maps Tourism Cameras Emergency Info.

Administration

Incident Detail

Admin Home  
Add Incident  
Search for Incidents  
Manage Notifications  
Set Special Alert  
Email all Users  
Manage Users  
Add a New Route  
Adverse Weather Report  
Log on Breakdowns

Content Info

24 x 7 Emergency On-Call contact

Location

Durham County, Near Clayton  
I-40 (Mile Marker E-2 to E06) heading West  
Lane Closed  
Expected backup is more than 2 miles

Start Time  
7/14/2006 05:00 PM

End Time  
7/15/2006 10:00 AM

Reason

**Construction: Lane Closed**

DOT crews will be setting bridge girders for the New Bethe Church Road bridge over I-40 as part of the Clayton Bypass project. At midnight, crews will shift eastbound traffic on I-40 across the median to a two-way two-lane traffic pattern in the westbound lanes of I-40 between milemarkers 312 and 306.

Construction Times:  
Friday-Saturday  
5:00 PM to 10:00 AM

**ALTERNATE ROUTE**

I-95 North to US-70 West to I-40 West or NC-210 West to NC-52 West to US-70 East to I-40 West

The North Carolina Department of Transportation  
7/19/2006 9:47:26 AM

23 minutes left

Start Email... 260717... Microsoft... FW: va... Suzann... NCDOT... untitled...

9:53 AM



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# Clayton Bypass Project



**mile marker 322.5**

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# Clayton Bypass Project



**mile marker 312.5**

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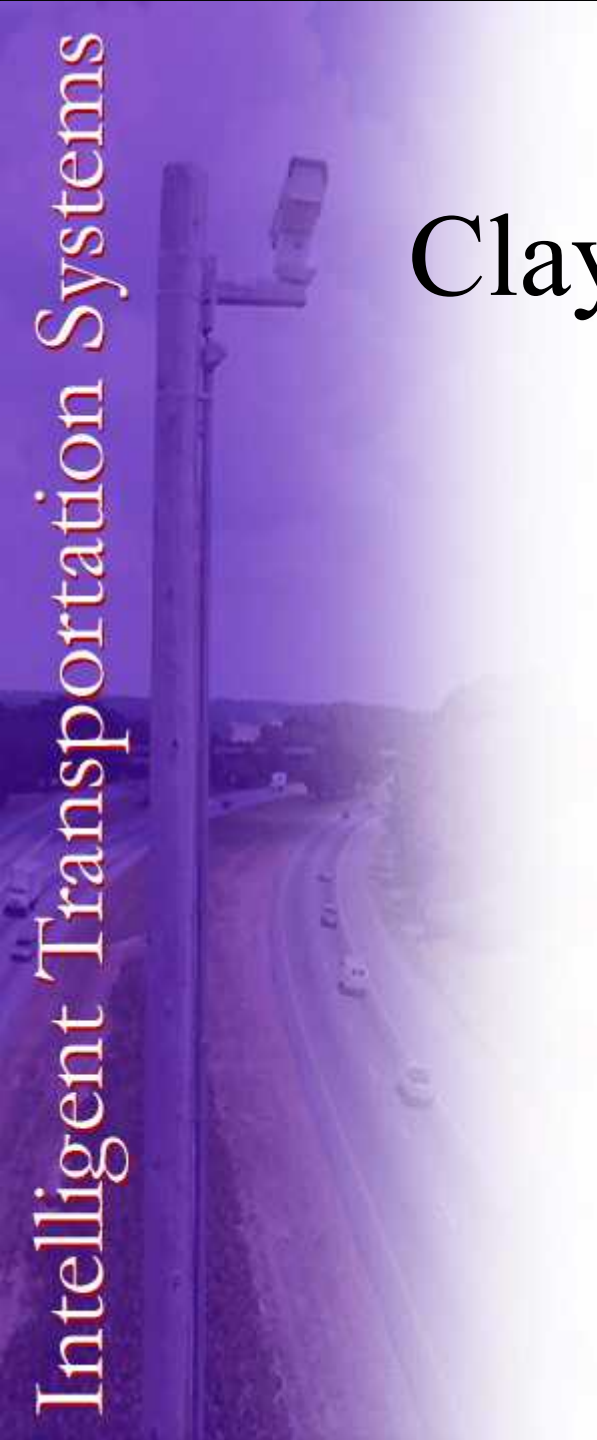
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# Clayton Bypass Project

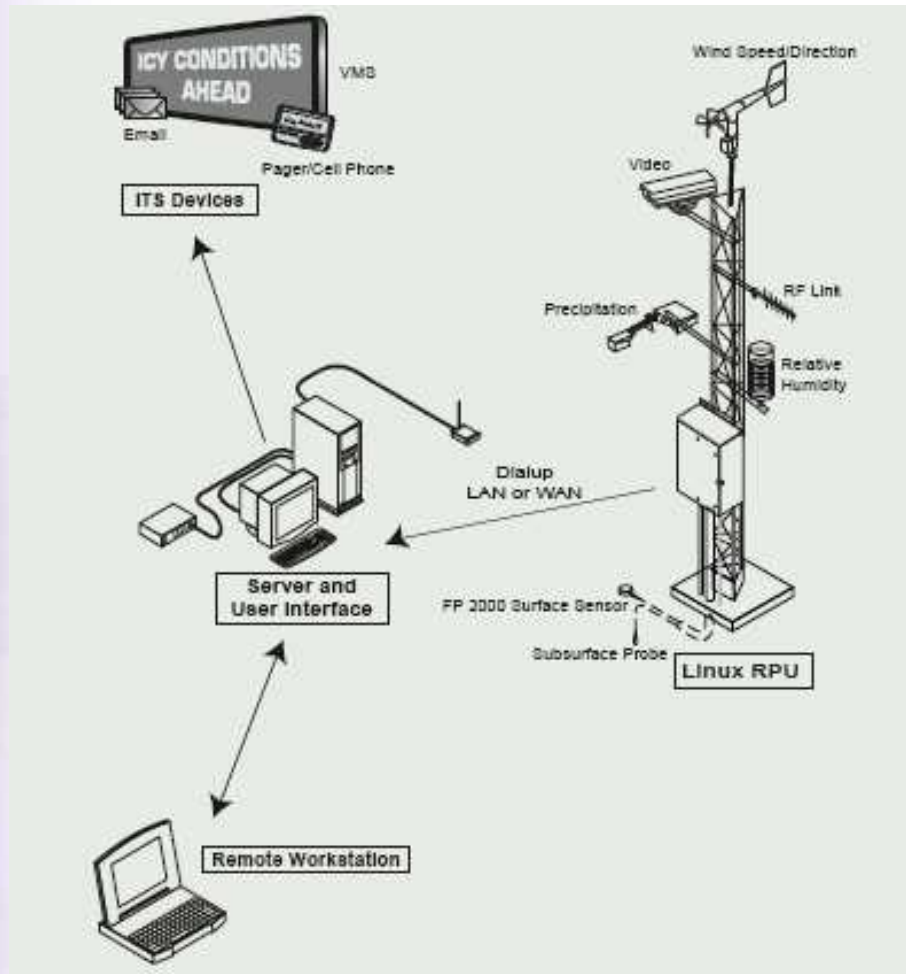


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# Smart Workzone



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# Smart Workzone

- Decision Matrix

- <99 mph to <55 mph
  - TRAFFIC 55 (flash) MPH
  - 10 (or 5) MILES USE
  - AHEAD IS CAUTION
- <55 mph to <50 mph 55 MPH U.C.
- <50 mph to <40 mph 45 MPH U.C.
- <40 mph to <30 mph 35 MPH U.C.

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# Smart Workzone

- Decision Matrix

- <30 mph to <20 mph
  - TRAFFIC 25 (flash) MPH
  - 10 (or 5) MILES USE
  - AHEAD IS CAUTION
- <20 mph to <10 mph
  - TRAFFIC 15 (flash) MPH
  - 10 (or 5) MILES PREPARE
  - AHEAD IS TO STOP
- <10 mph 0 (flash) MPH

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# Smart Workzone

- Costs
  - \$30,000 for Solar Powered RTMS speed trailer.
  - Modems and Phone Lines with Static IP addresses.
  - Message Boards with NTCIP compliant controllers (current and past VMS are not compliant).
  - Cost to design for special situations/projects..

# Smart Workzone

- Uses
  - Bridge Maintenance on US and Interstates
  - Incident Management (pull behind truck with truck mounted VMS)
  - Interstate lane closures
  - Moving operations

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# Smart Workzone

- Benefits
  - Low Initial Costs
  - Easy to set up
  - Portable
  - Own versus rent
  - The server is already paid for
  - Data Collection Website

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# Smart Workzone

- Benefits
  - If a redneck can dream it... then a redneck can run it!

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# Other Redneck Advancements

- The Redneck IMAP Vehicle



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# Other Redneck Advancements

- The Redneck Snow Plow



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## Other Redneck Advancements

- The Redneck House Boat (Penthouse Optional)



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# Other Redneck Advancements

- The Redneck Lawn Mower



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# Acknowledgements

- Andy Brown, PE Div 4 Traffic Engineer
  - Coming up with the Your Speed Is Sign at 42/40.
- Matlack Sales / Highway Information Systems / SSI
  - Putting up with a Redneck.

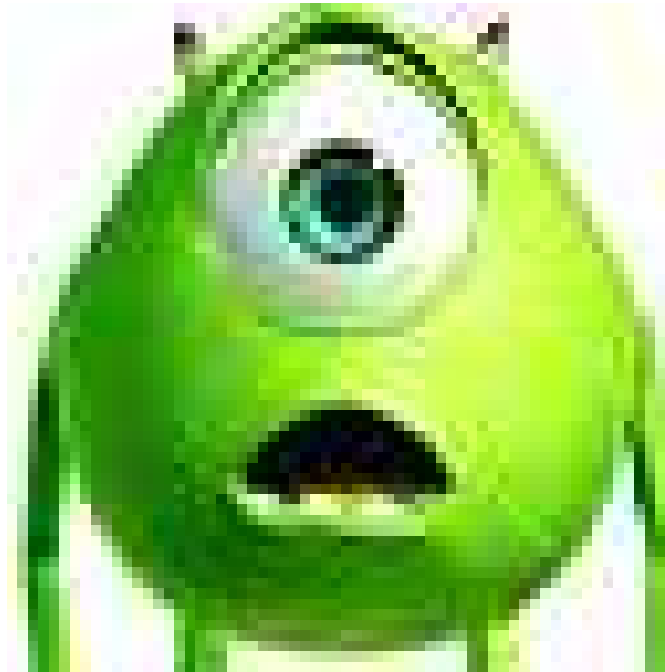
# Acknowledgements

- Kelly Damron, PE State ITS Operations Engineer
  - Funding
- Steve Kite, PE Project Engineer - Work Zone Traffic Control Unit
  - The REAL Smart Workzone Implementation



# The End

- What's my name?



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# The End

